Hadronic Calorimeter Prototype2 Simulation Update

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(GSU)

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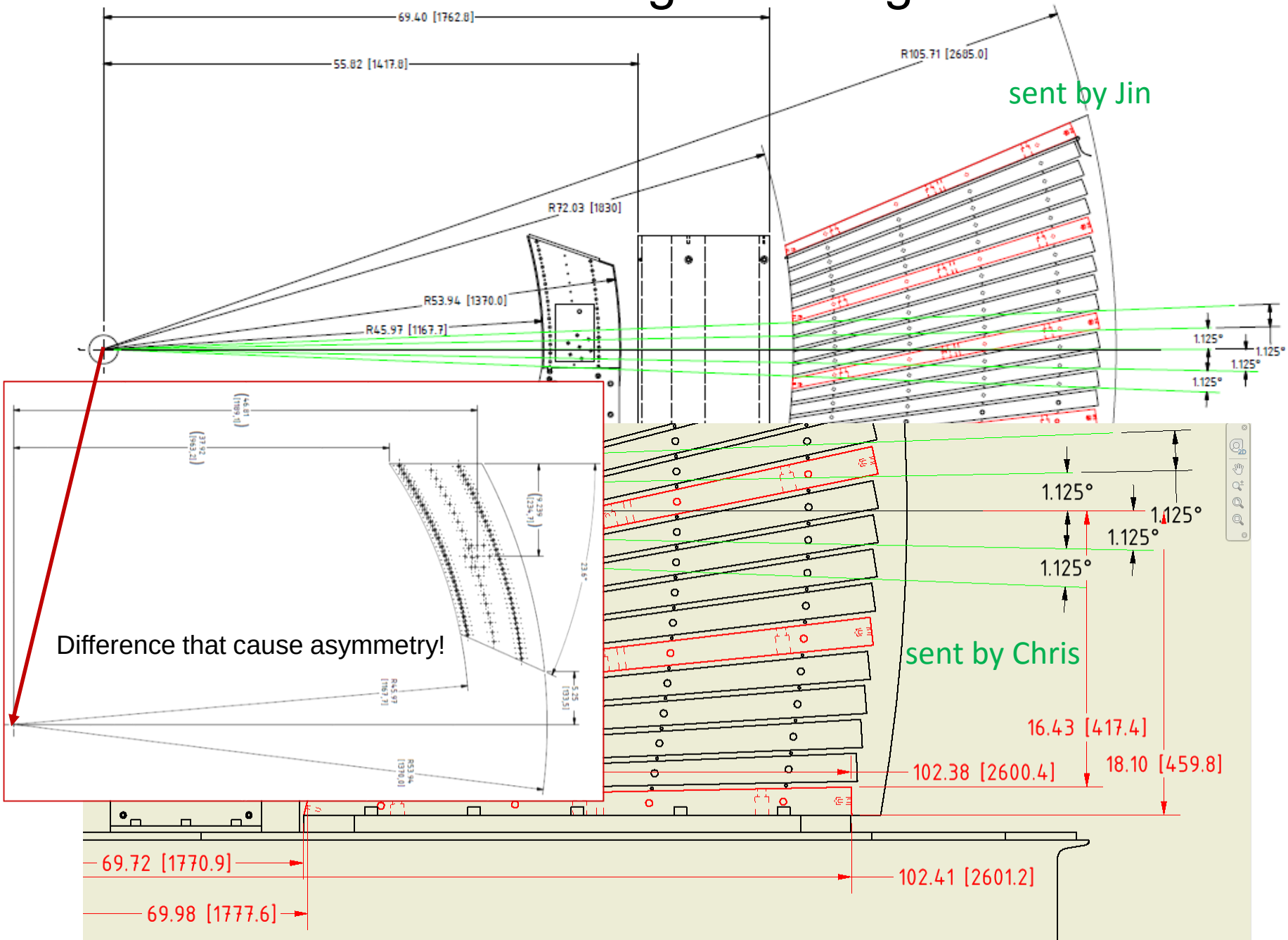
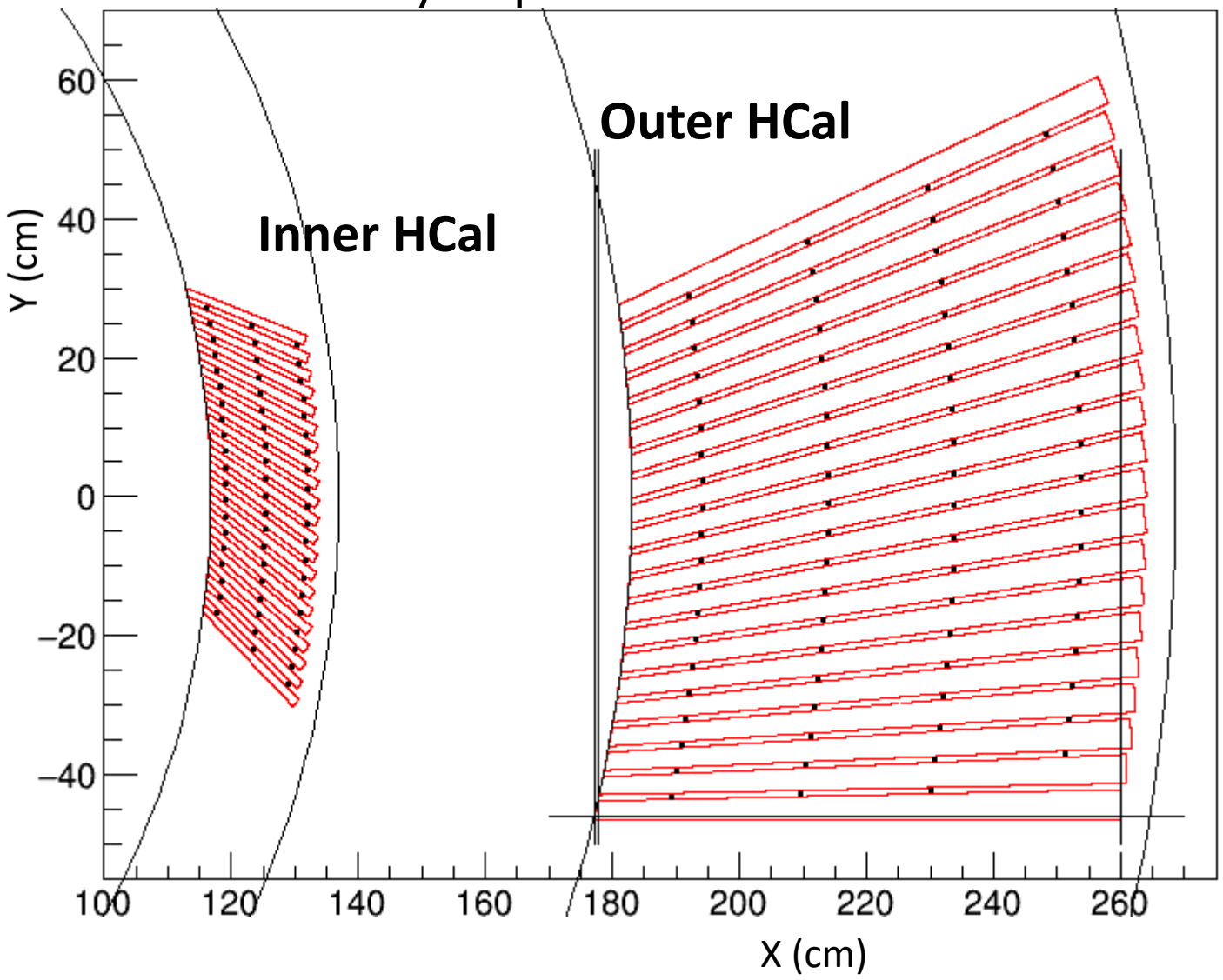
Richie's Design Drawings

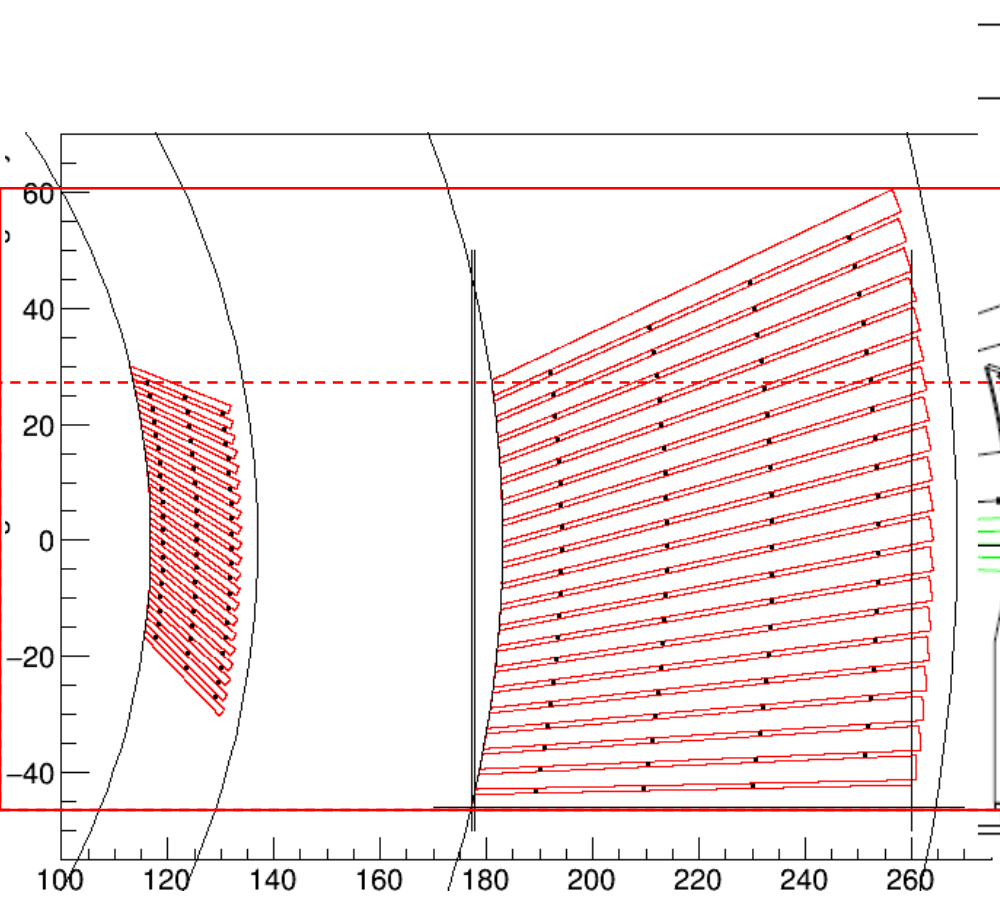


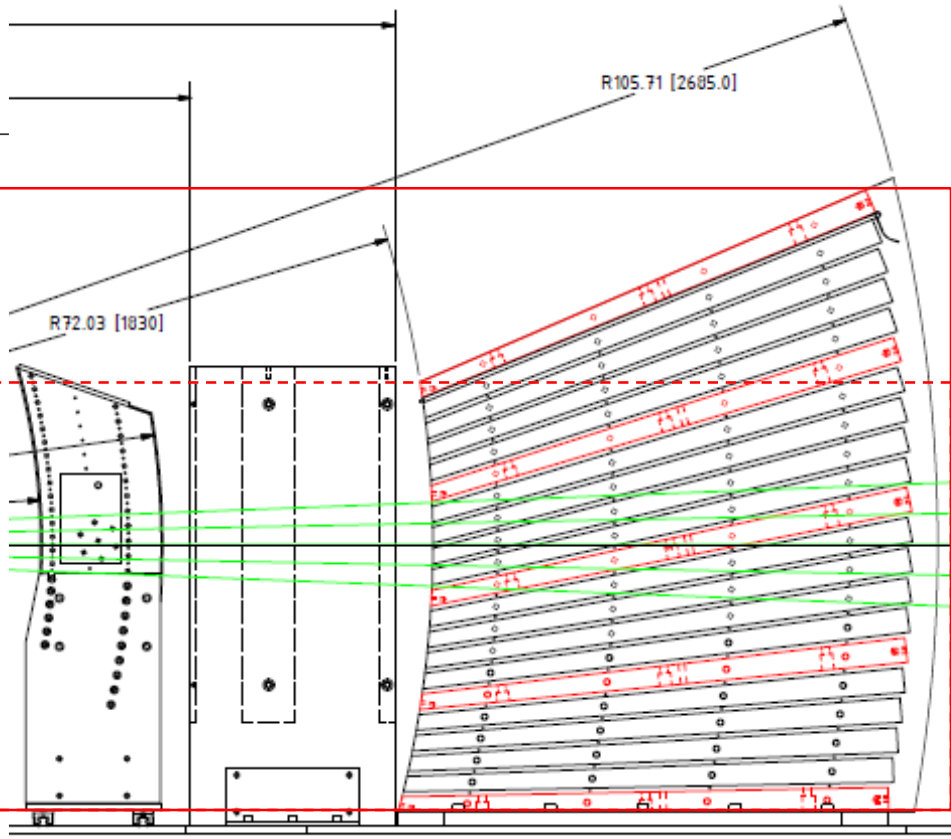
GEANT4 Simulations

- Richie's y%x points

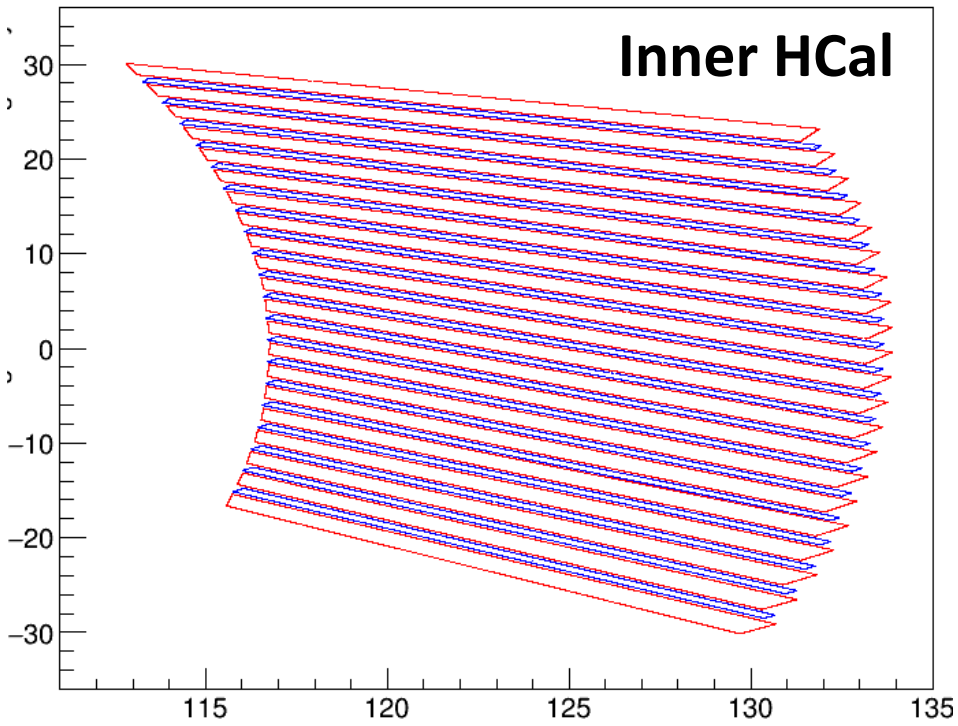


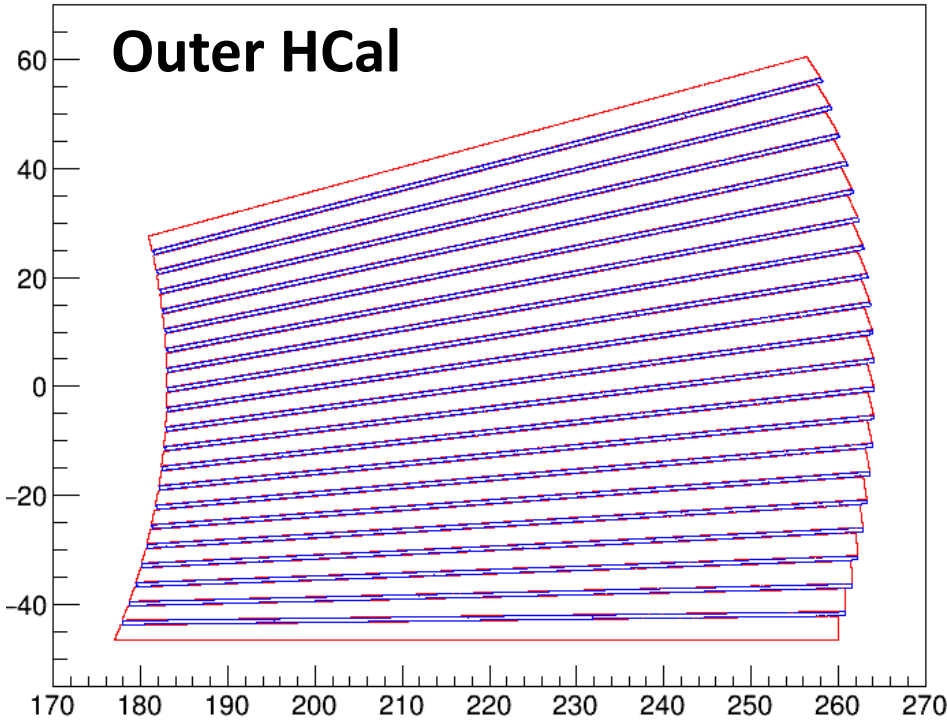
GEANT4 Simulations





GEANT4 Simulations



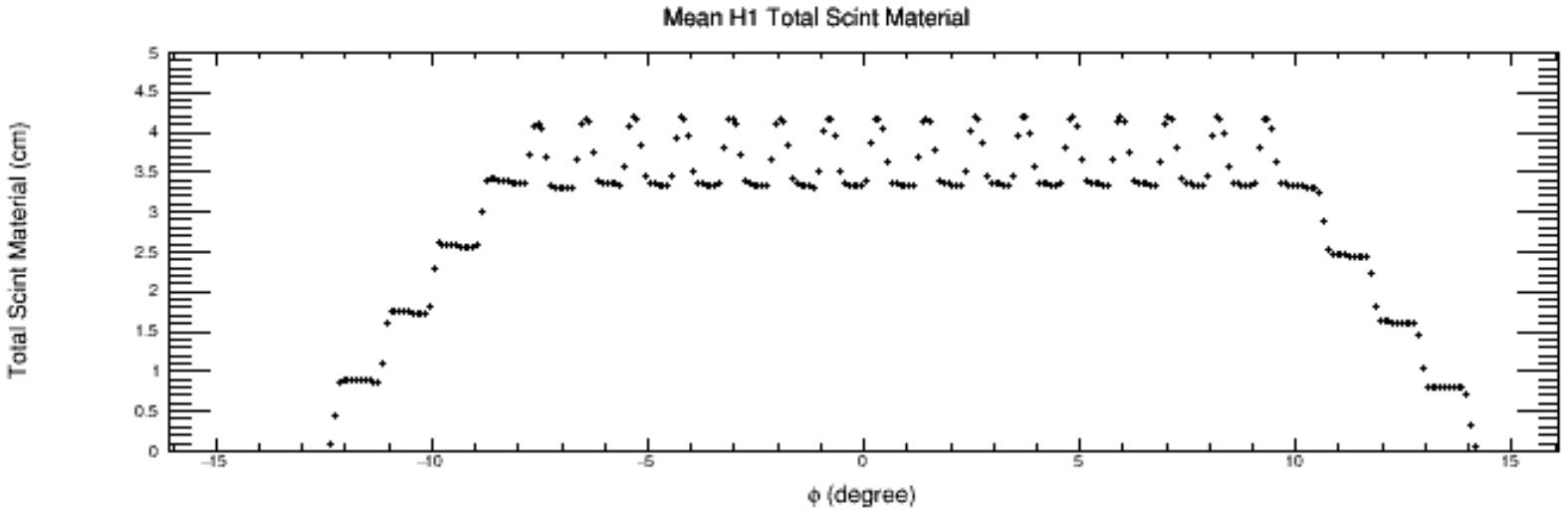


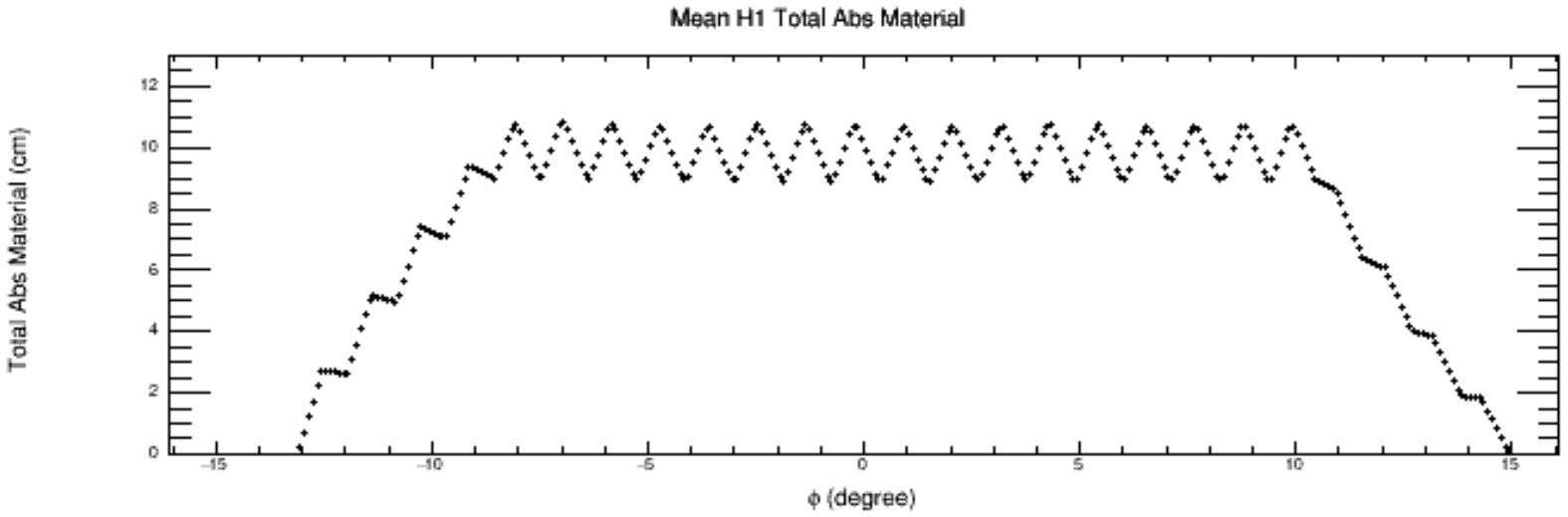
Absorber

Scintillator

Material Scan w/ GEANTINOS / Inner HCal

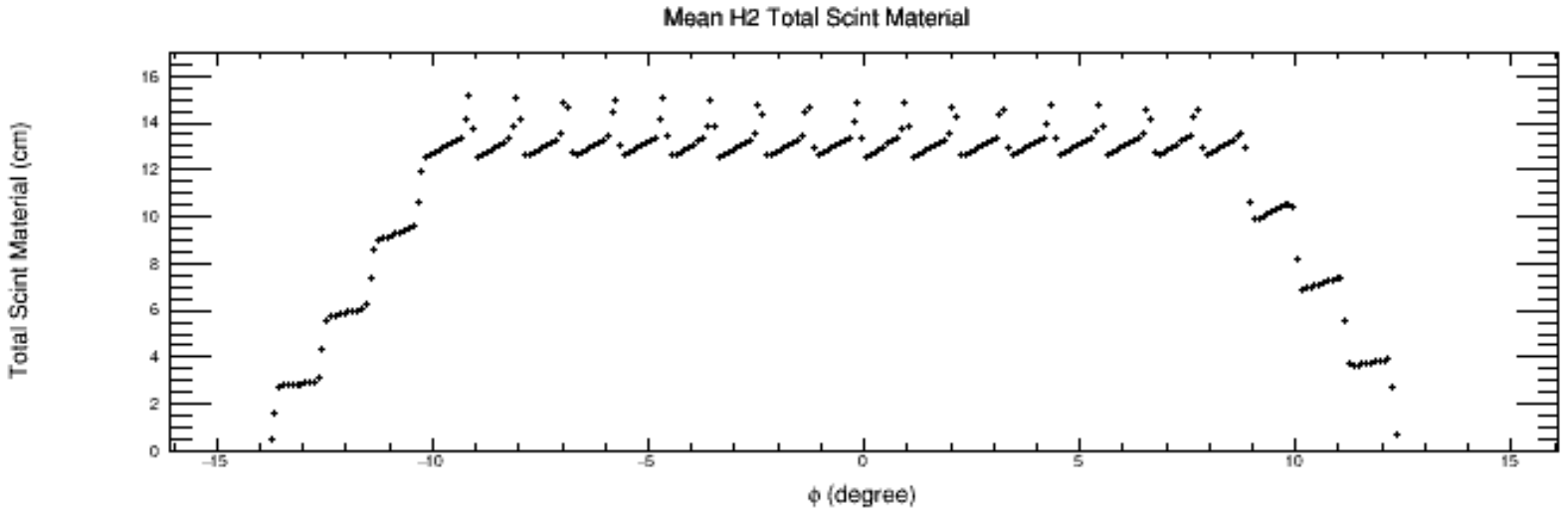
- Beam spot: $|\phi| < 0.5$ deg. Centered at -5°, 0 °, and 5°

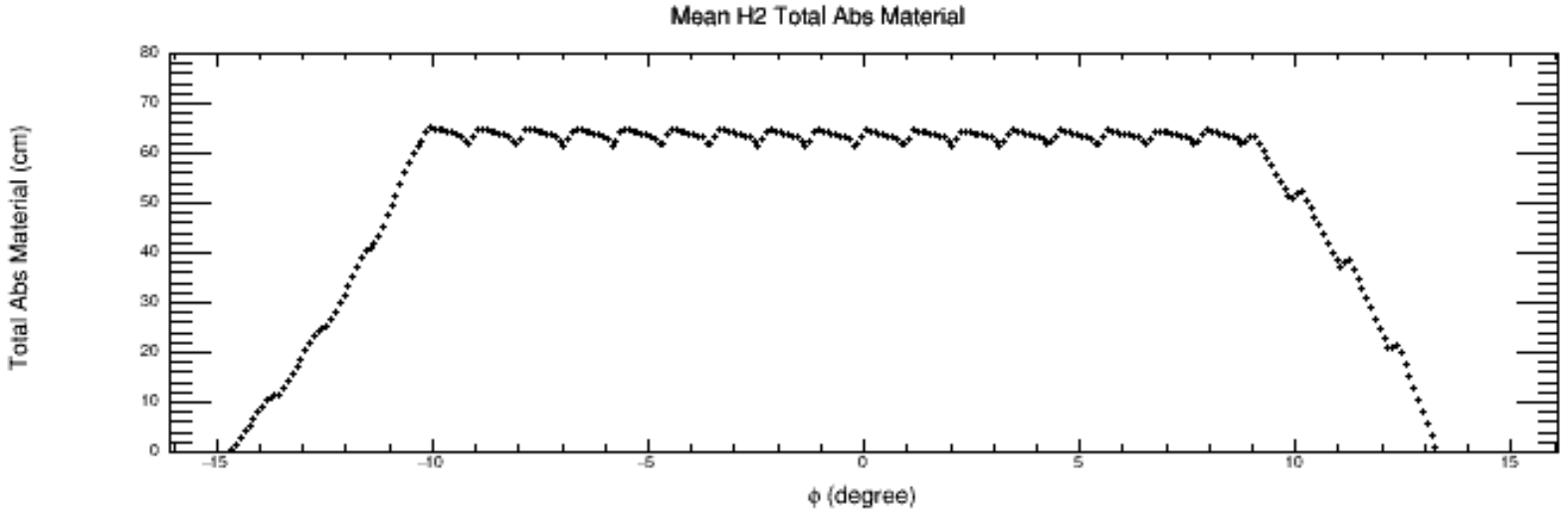




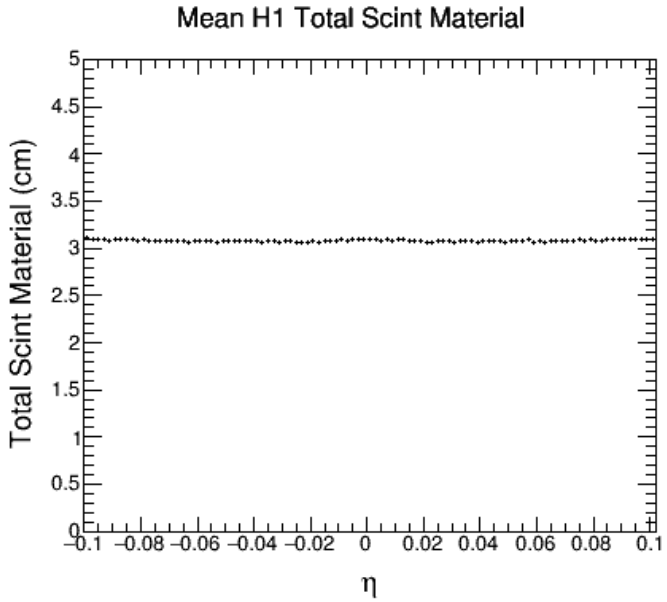
Material Scan w/ GEANTINOS / Outer HCal

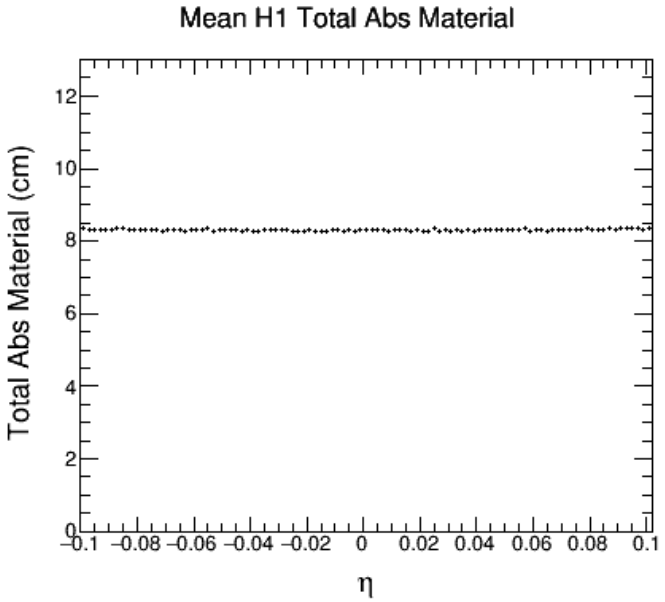
- Beam spot: $|\phi| < 0.5$ deg. Centered at -5°, 0 °, and 5°

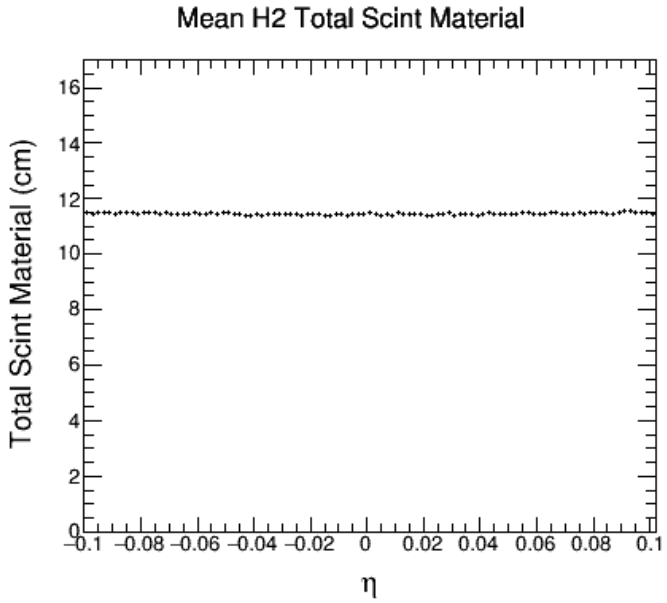


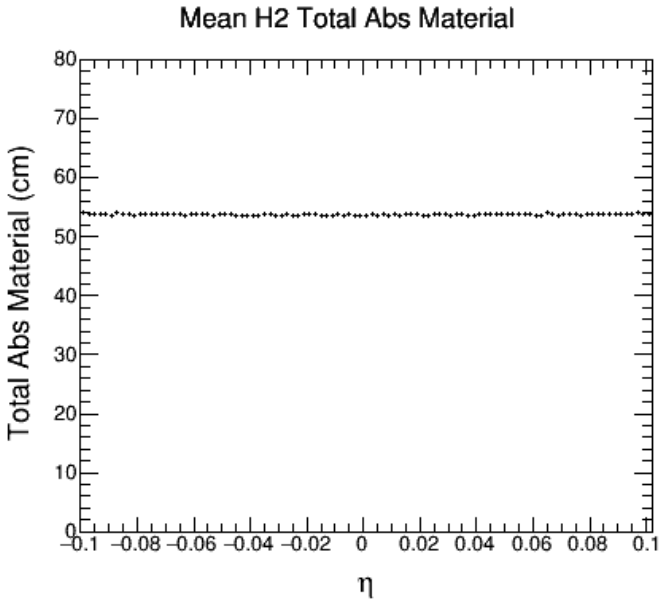


Material Scan w/ GEANTINOS



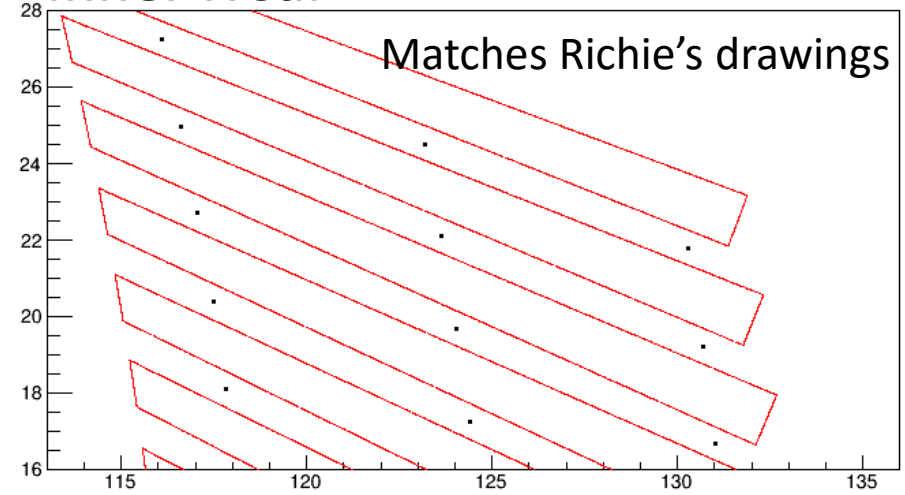


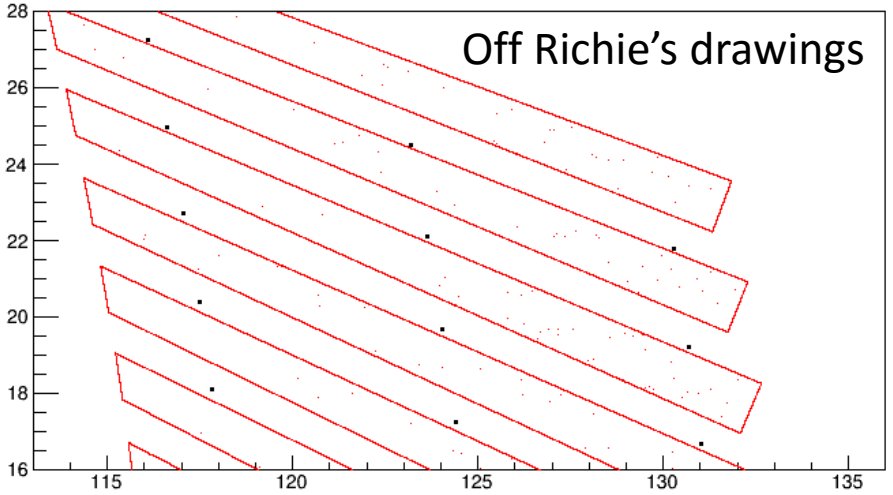




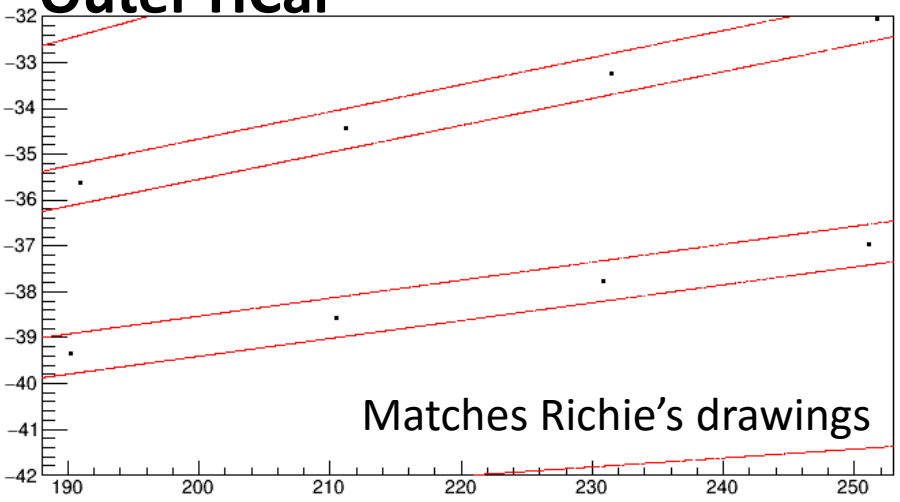
What if the positions are off by several mm?

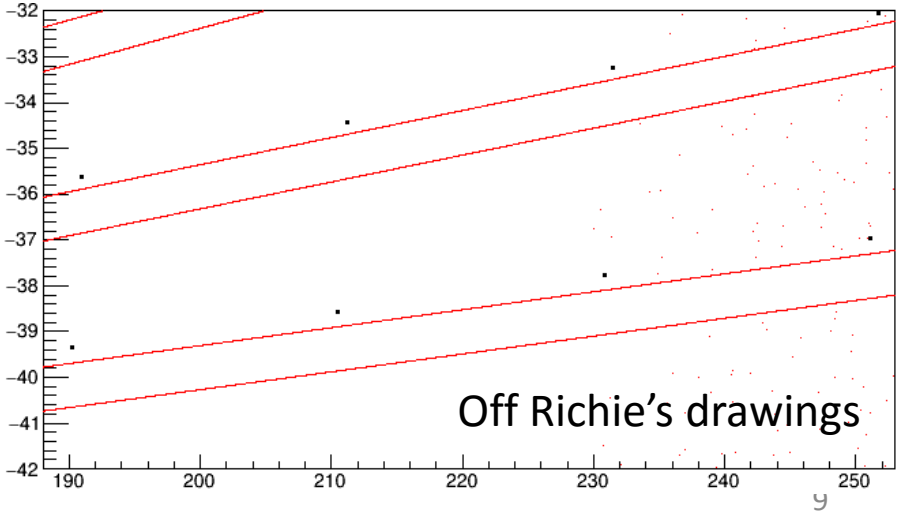
Inner HCal





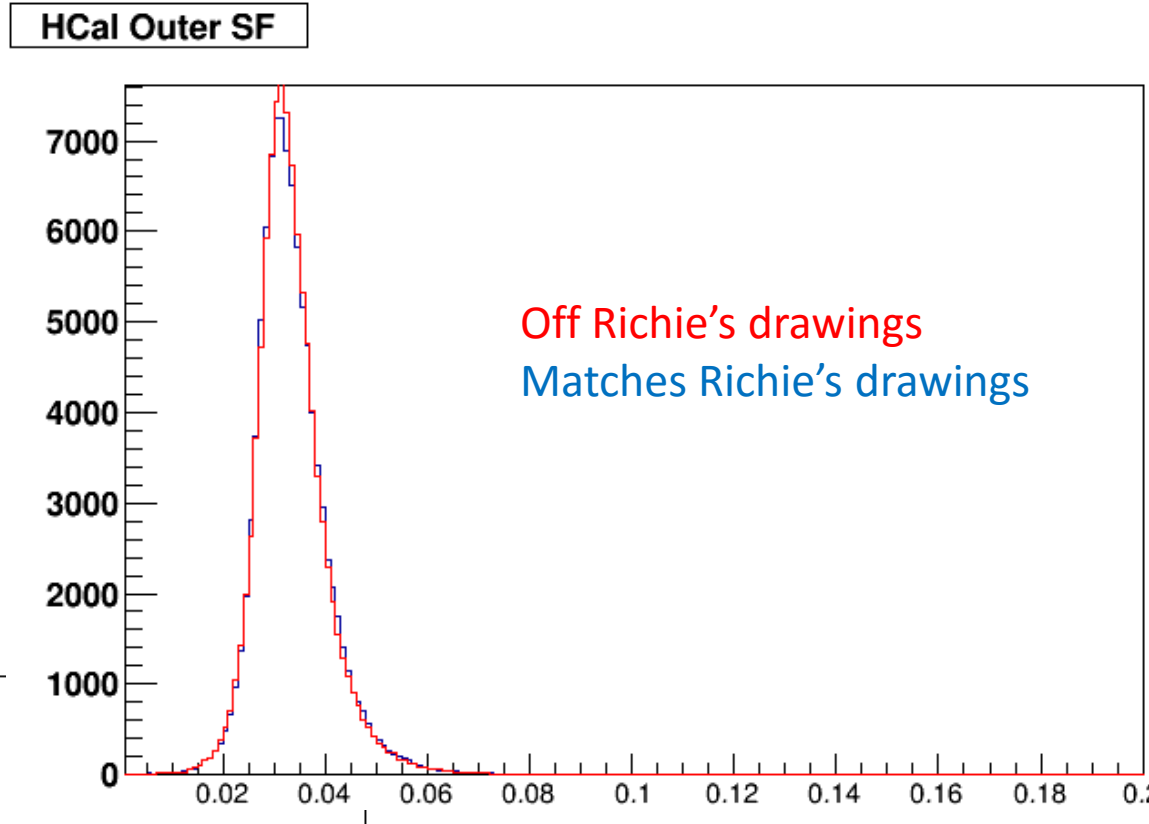
Outer HCal



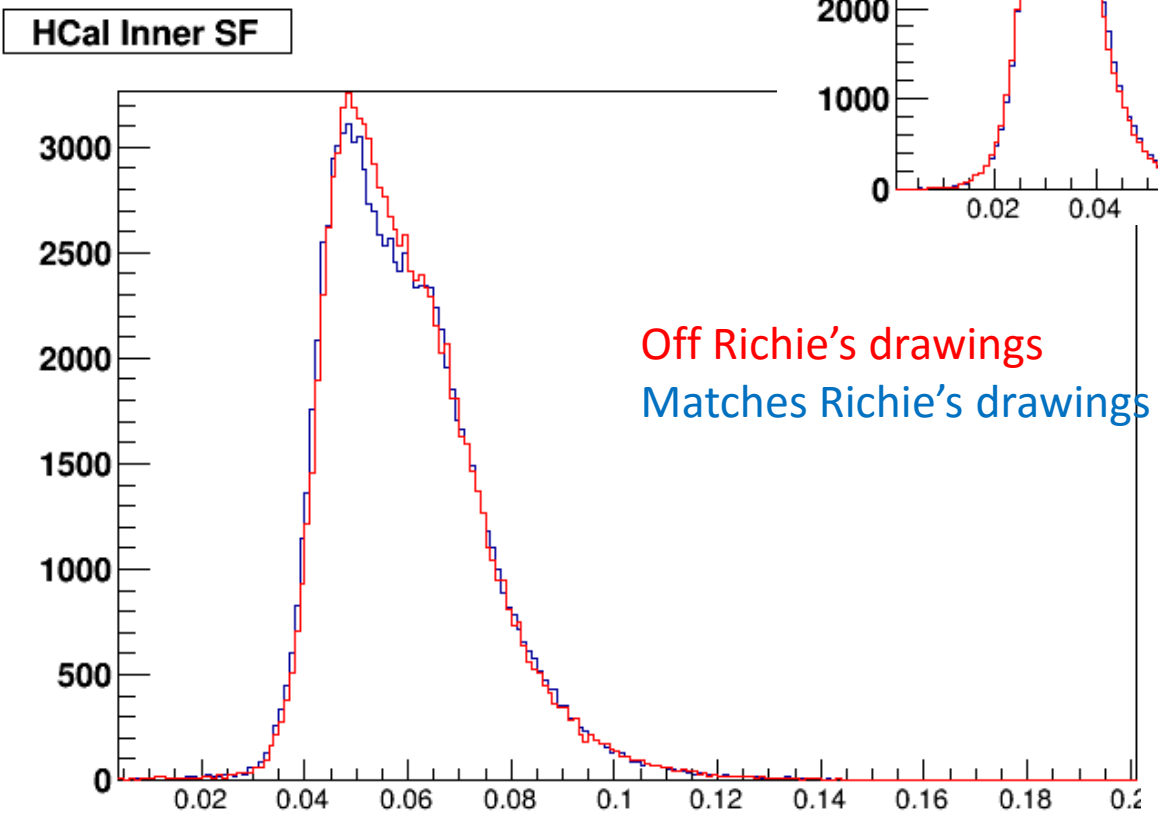


Impact on sampling Fraction

10 GeV μ^-
at $|\eta| < 0.01$ & $|\varphi| < 0.5°$



Off Richie's drawings
Matches Richie's drawings



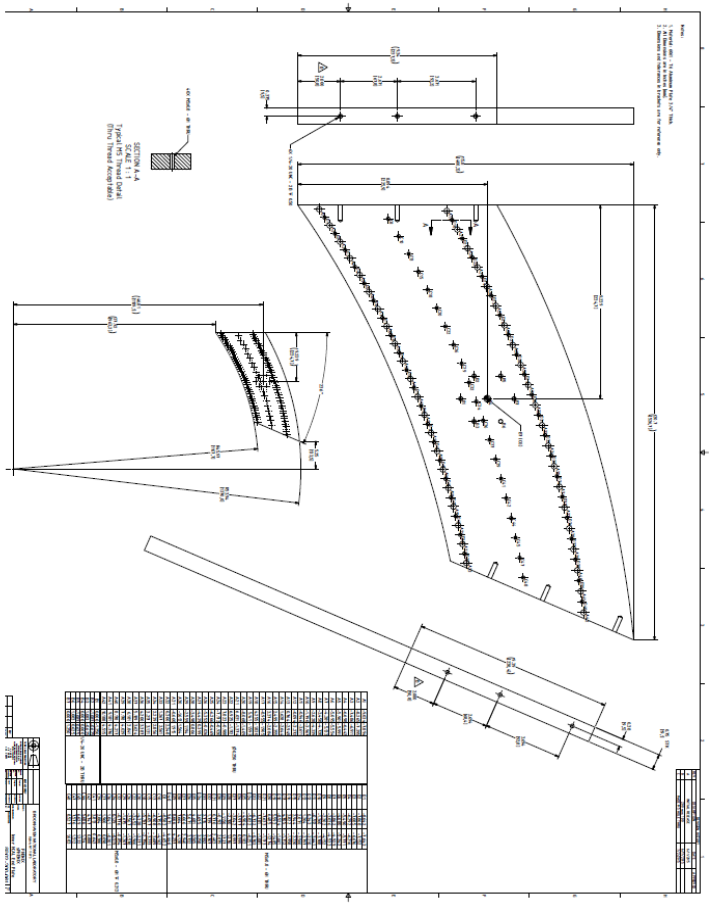
Off Richie's drawings
Matches Richie's drawings

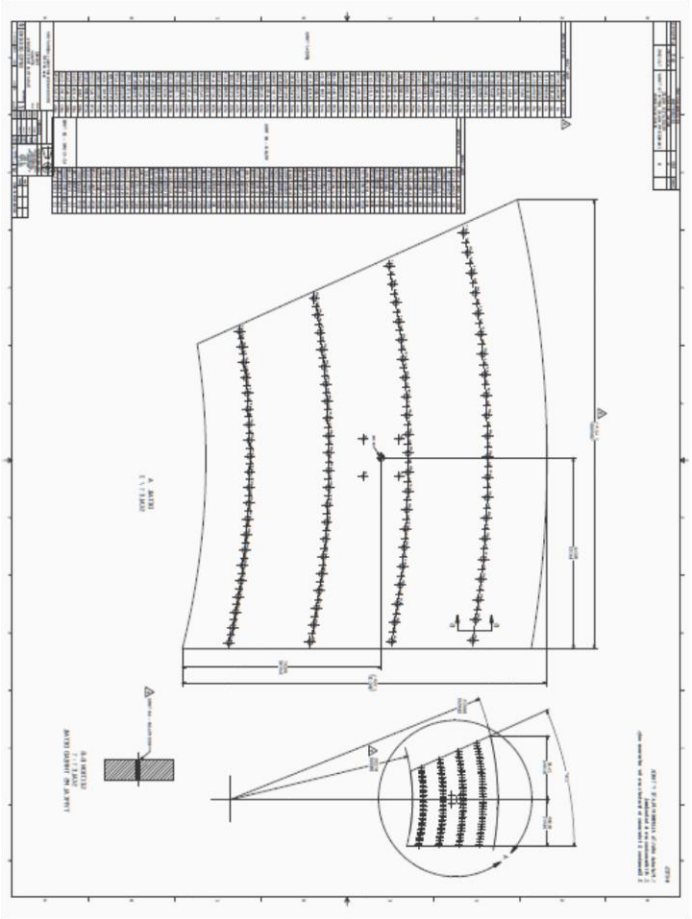
- Increasing the space by several mm doesn't impact the sampling fraction!

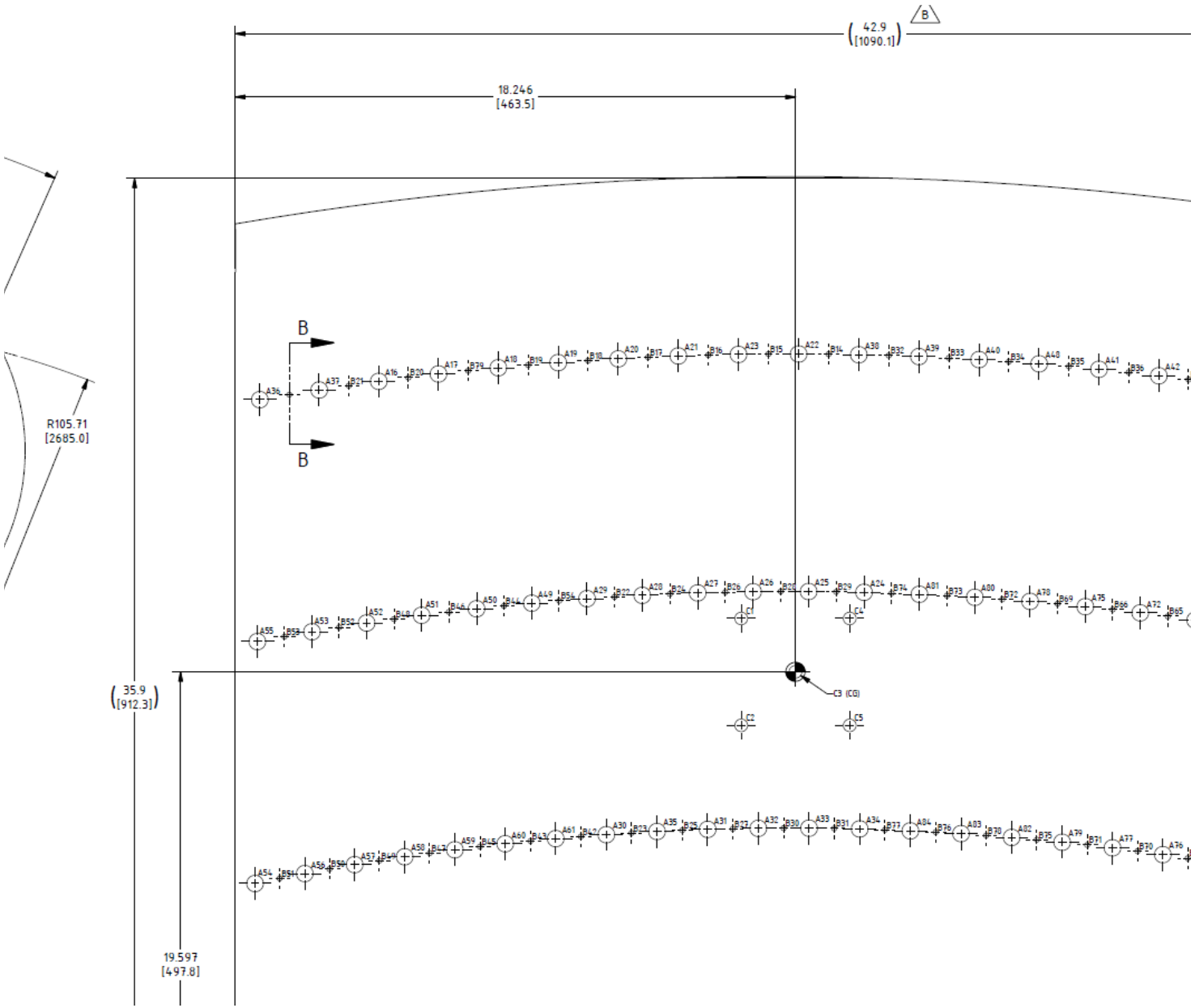
Summary & To do

- Geometry describes the simulation very well?
- Carry out simulation studies similar to those done for prototype1

Richie's Design Drawings



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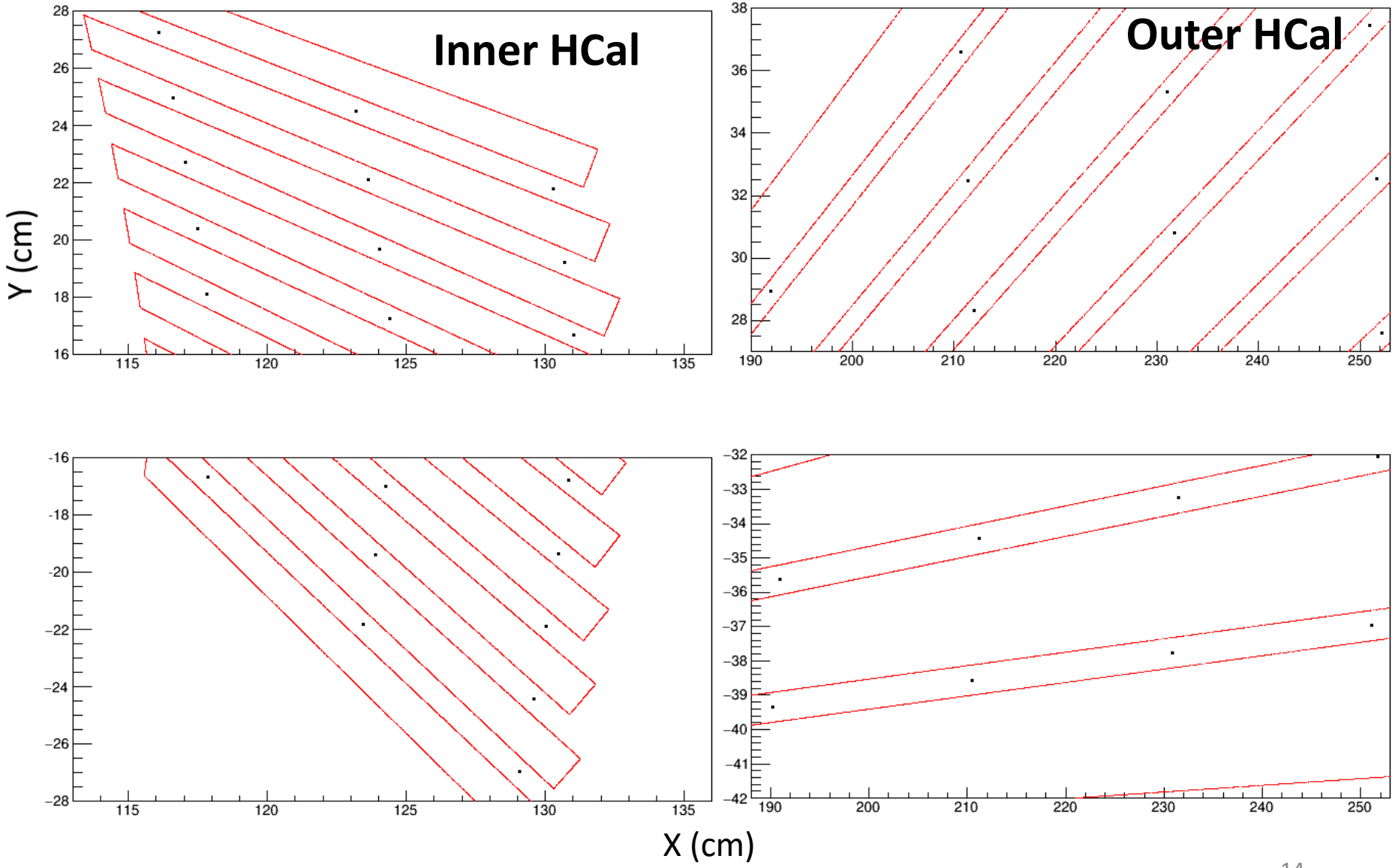
[1090.1]
B
18.246
[463.5]
R105.71
[2685.0]
35.9
[912.3]
19.597
[497.8]
C3 (CG)

GEANT4 Simulations



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